

## REMARKS

This paper supplements the applicant's paper submitted March 30, 2006, in response to the non-final official action dated December 30, 2005, wherein: (a) claims 1-13 are pending; (b) claims 1-13 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting ("ODP") as being unpatentable over claims 1-13 of co-pending U.S. Patent Application Serial No. 10/331,729 in view of Kojima et al. U.S. Patent No. 5,766,498 ("Kojima") and Chen et al. U.S. Patent Application Publication No. 2003/0121608 ("Chen '608"); (c) claims 1 and 5-9 were rejected under 35 USC § 103(a) as being obvious over allegedly admitted prior art in view of Kojima and Chen '608; (d) claims 2, 3, 10, 12, and 13 were rejected under § 103(a) as being obvious over allegedly admitted prior art in view of Kojima and Chen '608, and further in view of Satou et al. U.S. Patent No. 4,676,194 ("Satou"); (e) claim 4 was rejected under § 103(a) as being obvious over allegedly admitted prior art in view of Kojima and Chen '608, and further in view of Dunham U.S. Patent No. 4,676,194 ("Dunham"); and, (f) claim 11 was rejected under § 103(a) as being obvious over allegedly admitted prior art in view of Kojima and Chen '608, and further in view of Kinoshita U.S. Patent No. 5,518,572 ("Kinoshita").

As explained in the applicant's March 30, 2006, response, that part of the Chen '608 disclosure cited in the December 30, 2005, official action is *not* available as a prior art reference against the applicant's claims. However, because Chen et al. U.S. Patent No. 6,916,398 ("Chen '398") (1) contains disclosure similar to that of Chen '608, and (2) was disclosed in a supplemental IDS dated March 30, 2006, this paper provides supplemental amendments and remarks in response to a hypothetical set of rejections based on a substitution of Chen '398 for Chen '608 in the December 30, 2005, official action.

Additionally submitted herewith is a terminal disclaimer in response to the obviousness-type double patenting rejection of claims 1-13.

Reconsideration and withdrawal of the outstanding rejections are respectfully requested in view of the foregoing amendments and following remarks.

### **I. Brief Summary of the Amendments to the Claims**

Claims 1, 7, and 10 have been amended to more particularly recite the spatial relationship between the cooling plate and the reaction chamber. Support for these amendments may be found, for example, in Figs. 4-8. No new matter has been introduced by the foregoing amendments.

**II. The 35 USC § 103(a) Rejection Is Traversed**

**A. Proper Basis for a § 103(a) Rejection**

To establish a *prima facie* case of obviousness, the PTO must satisfy three basic criteria. First, the combined disclosure of the prior art references must teach or suggest all of the claim limitations. Second, there must be some suggestion or motivation to modify or combine the teachings in the art to make the precise combination recited in the claims. Finally, a person having ordinary skill in the art must have a reasonable expectation of success when combining or modifying the disclosures of the references. The suggestion or motivation to make the claimed invention and the reasonable expectation of success must both be derived from the prior art, and not from the application's disclosure. See MPEP §§ 2142-43 (8th ed., October 2005).

**B. No Prima Facie Case of Obviousness Has Been Made and, therefore, the § 103(a) Rejection Is Traversed**

The applied patents **do not** teach or suggest all of the limitations recited in claims 1-13. Thus, no *prima facie* case of obviousness has been made in the instant action, and none exists based on the combination of the applied publications. Accordingly, reconsideration and withdrawal of the § 103(a) rejection are respectfully requested.

Independent claims 1, 7, and 10 recite a cooling plate located on the outside of the reaction chamber. Independent claims 1, 7, and 10 also recite a shower head having a cylinder part and a radial cone part.

Kojima describes an anisotropic etching method and apparatus. The Kojima apparatus includes an electrode unit 2 disposed inside a process chamber 1. See Kojima, col. 3, lines 47-53, and Fig. 1. The electrode unit 2 has two cooling elements (cooling block 23 and cooling plate 53), which are also located inside the process chamber 1. See Kojima, col. 3, lines 54-55, col. 4, lines 1-3, and Fig. 1. Kojima discloses a cooling device 41 external the process chamber 1; however, the cooling device 41 is *not* located on the outside of the process chamber 1 and is *not* a cooling plate (i.e., the function of cooling device 41 is to (presumably) cool a coolant and then to circulate it into the process chamber 1 and into the cooling block 23). See Kojima, at col. 3, lines 56-58 and Fig. 1. The Kojima apparatus does not include other external cooling elements or devices. See Kojima, at Fig. 1.

Because neither Kojima nor the other applied patents, either alone or in combination, teach or suggest a cooling plate located on the outside of the reaction chamber as recited in each of independent claims 1, 7, and 10 as amended herein, no *prima facie* case of obviousness exists for independent claims 1, 7, and 10.

Chen '398 describes a gas delivery apparatus and method for atomic layer deposition. More specifically, Chen '398 discloses a gas delivery apparatus 230 having an

expanding channel 234. See Chen '398, at col. 4, lines 44-46, and Figs. 1 and 3. Chen '398 does *not* disclose a shower head having a cylinder part and a radial cone part, because no portion of the expanding channel 234 is cylindrical. Specifically, the "expanding channel 234 comprises a channel which has an inner diameter which increases from an upper portion 237 to a lower portion 235 of the expanding channel 234 adjacent the bottom surface 260 of the chamber lid 232." Chen '398, at col. 6, lines 38-42. As specific examples, Chen '398 discloses that the expanding channel may be a truncated cone (col. 7, lines 1-2) and/or may have multiple sections with various taper angles/shapes (col. 7, lines 28-33). See also Chen '398, at Fig. 3 (showing two truncated conical sections forming the gas conduit).

Because neither Chen '398 nor any of the other applied patents, either alone or in combination, teaches or suggests a shower head having a cylinder part and a radial cone part, no *prima facie* case of obviousness exists for independent claims 1, 7, and 10.

Additionally, the official action relied exclusively on Figs. 5 and 6 of Chen '608 for the rejection of claim 5. See the action, p. 5. Because Chen '398 does not contain any figures analogous to those cited in Chen '608, claim 5 is additionally understood to be free from the art, notwithstanding the previous two arguments for claims 1, 7, and 10.

#### CONCLUSION

Accordingly, the applicant respectfully requests entry of amendments to claims 1, 7, and 10, consideration of the terminal disclaimer submitted herewith, reconsideration and withdrawal of the outstanding rejections, and allowance of all pending claims 1-13.

Should the examiner wish to discuss the foregoing, or any matter of form or procedure in an effort to advance this application to allowance, she is urged to contact the undersigned attorney.

Respectfully submitted,

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